

Twelve (12) Destructive Cosmic Events (DiCEs) listed by an order of the probability - first mentioned are the most probable to happen sooner or later:

1) ASTEROIDS: Huge asteroids coming from the outer space. Apophis (340 meters) in 2029. will pass dangerously near us. Sentry Impact Risk Table, operated by Center for Near-Earth Object Studies (CNEOS) located in Caltech (Pasadena, California), is an automated collision prediction system. They say we are safe. Safe? With 340 (three hundred forty) meters rock above our heads. Read this part: "...as it encounters our planet's gravitational field in 2029.". It will fly that near? Then it can surely influence Earth`s geomagnetics during the passage distorting communications and electronic systems. And we are safe? People will go insane just watching the twenty (20) Megatone stone using their smartphone lenses, getting closer and closer, fueled by fanatic speeches they will rampage the stores, commit collective suicides, etc. You are calling that safe? Another worry I have is that all this asteroids actually could be an alien deep space probes camouflaged as an asteroids. Do not talk to me about safe. Rather tell me what is an estimated range of its transit in 2029. - "less than 32.000 kilometers from our planet's surface" you say. An average lenght between Earth and the Moon is approx. 385.000km. Thirty two thousand is about 1/10 (one tenth) of that lenght. The Apophis in 2029. will pass at one tenth of the lenght between Earth and Moon! Diameter of the Moon is 3,475 km or 3475000m. Divided by 340 we get 10,220 (ten thousand two hundred and twenty) ratio (1:10,220) meaning it will be impossible to see the Apophis with bare eyes. We will need 1,022x zooming gear to see it Moon sized. Ten (10x) optic magnification and one hundred (100x) digital will suffice for an amateur. If you want details you will need an amateur telescope but nothing fancy for this occasion due to the vicinity of the respective object when it passes the Earth in 2029.

2) SUN ACTIVITY: Solar flare, or even coronal mass ejection (CME), that will disturb Earth`s magnetosphere creating powerful geostorms around the globe turning off the entire electric power grid and communications.

3) GEOMAGNETIC FAILURE: The Earth's core, boiling metals, spend its fuel, cools down and stops spinning shutting down its magnetic field.

4) DEADLY PATHOGENS: There are many potential places, either of extraterrestrial or Earth origin, from where deadly pathogens could emerge: outer space, unexplored planets, the Mariana Trench, polar ice or they could be developed in the biochemical laboratories around the world. What scares me the most is the fact that humanity is utterly unprepared regardless of the significant budget involved. Just look at the Corona virus pandemic: relatively mild virus caused global health, financial and security problems mostly due to the two factors - 1) lack of prompt and proper medical response (politics and private interests over public wellbeing) and 2) resistance to the vaccination and safety precautions. I ask this question: "Are you aware what would happen if much stronger virus caught us"? The answer is obvious: "We wouldn't be here now". Why? Because of the disorganized system and a human stupidity.

5) NATURE RESPONDS: What if the Universe behaves like a living organism or is one? If it hurts somewhere, if imbalance is created at some place than Nature activates its counter measures, its immune system to restore the cosmic equilibrium. Since humans destroy their entire environment, not just the surface but the underground and sky as well, together with associated ecosphere, we can expect more earthquakes, eruptions of lava, tougher and more durable microorganisms, bad genetic mutations and finally the new ice age, general overflow or global drought.

6) EXTRA-TERRRESTRIAL(S) INVASION: Alien attack using too advanced technology from which we can not defend.

7) ENERGY OUTBURST: Harmful and strong EM emission from any source other than Sun, which is listed separately as a second DiCE, like supermassive black hole's powerful radiation jets - if they reach us in the critical quantity and concentration.

8) GALAXIES COLLISION: Crash with another galaxy. Milky Way will one day crash with the Andromeda (Messier 31). Not soon but it will happen one distant day in the future scientists say. We need a new habitable planet somewhere safe and enough space ships to transfer an entire population. Good news is that we have plenty of time, over billion years, until that happen. Andromeda galaxy is one of the largest Universe structures that can be seen with a bare eye looking from the Earth.

After I made my own calculations I discovered that data published on a different Internet sites is wrong: the Andromeda speed is approx. 54 km/s and the collision time is slightly over 1.37 billion years not 2, 4 or 5.

Let us check the numbers:

distance to the Andromeda = 2.5 million light years = 0.7665 Mpc = 2.3652

$\times 10^{18}$  km (2.3652E+19)

Hubble's constant = 71 km/s/Mpc (67-75)

[https://lambda.gsfc.nasa.gov/education/graphic\\_history/hubb\\_const.html](https://lambda.gsfc.nasa.gov/education/graphic_history/hubb_const.html)

Hubble's law relates the radial velocity of a distant galaxy and their distance from us.

$$v = H_0 \times d$$

$$\text{Andromeda velocity} = 71 \text{ km/s/Mpc} \times 0.7665 \text{ Mpc} = 54.4215 \text{ km/s}$$

$$\begin{aligned} \text{Collision time} &= \text{distance} / \text{speed} = 2.3652 \times 10^{18} \text{ km} / 54.4215 \text{ km/s} = \\ &= 4.34607646 \times 10^{16} \text{ (4.34607646E+17) s} = 1.3781 \times 10^9 \text{ (1.3781E+10)} \\ &\text{years} = 1.3781 \text{ billion years} \end{aligned}$$

calculator - Search (bing.com)

unit converter - Search (bing.com)

[https://imagine.gsfc.nasa.gov/features/yba/M31\\_velocity/hubble\\_law/hubble\\_data.html](https://imagine.gsfc.nasa.gov/features/yba/M31_velocity/hubble_law/hubble_data.html)

They used value "68" which makes the result a bit different (52.122 km/s) but it confirms my approximate calculation of the Andromeda velocity (54.4215 km/s).

There are two huge problems.

First, Wikipedia says Andromeda velocity is " $-301 \pm 1$  km/s". Other sources use values ranging from 100-140 km/s.

[https://en.wikipedia.org/wiki/Andromeda\\_Galaxy](https://en.wikipedia.org/wiki/Andromeda_Galaxy)

<https://space-facts.com/galaxies/andromeda/>

<https://astronomy.swin.edu.au/cosmos/A/Andromeda+galaxy>

It differs significantly from my (correct) value confirmed by NASA.

[https://imagine.gsfc.nasa.gov/features/yba/M31\\_velocity/hubble\\_law/answer\\_correct.html](https://imagine.gsfc.nasa.gov/features/yba/M31_velocity/hubble_law/answer_correct.html)

This source also confirms my calculation:

<https://www.omnicalculator.com/physics/hubbles-law>

Second problem is that I get totally different time collision result.

How did they get 2, 4 or 5 billion years result?

Clear example how unreliable Internet is.

For example, Wikipedia is using data from the 1991.

9) BLACK HOLES: Two black holes colliding in our vicinity creating gravitational waves strong enough to push the Earth out of its orbit around the Sun. Or black hole which swallows us. Luckily, there is very little chance for either of this two occurrences because there are no black holes critically close to the Earth. I sincerely hope there are no traveling black holes.

10) COSMIC DISSOLUTION: All stars will burnout, the black holes will swallow the remains and entire Universe will cool down to an absolute zero leaving nothing behind.

11) NEW COSMIC CYCLE: Reverse expansion (contraction) or The Big Crunch.

12) COSMIC BLEND: New Big Bang happening inside this Universe or in our cosmic neighborhood causing the mutual blend and havoc.

As you may noticed already, what I refer to as the DiCEs (Destructive Cosmic Events) are the potential catastrophes on the cosmic level that can theoretically occur but we still have no means to adequately respond - not even theoretically. Everything but the last three is possible to counter with an advanced technology and I sincerely hope that we will develop it in time. The last three is in the divine hands solely.